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GEOGRAPHICAL RECORD

THE AMERICAN GEOGRAPHICAL SOCIETY

The Society's Exhibitions. Public interest in the exhibitions at the Society's house give ample encouragement to continue this feature of our work. The attendance during the first ten weeks of this year was 2,817 and would doubtless have been much larger if it had not been for the long period of inclement weather. On March 15, the first pleasant Sunday in six weeks, there were nearly 500 visitors. The exhibition has recently consisted of many views of conspicuous types of the vegetation of the world published by Gustav Fischer, Jena, a series of large views showing types of the physical forms of the earth, and a collection of superior etchings, presented to the Society by Vice-President Anton A. Raven, illustrating historic public buildings, houses and scenes in the early days of our history as a nation. A part of the space in the exhibition hall is given to maps relating to the Spanish and Portuguese lands in the new and old world simultaneously with the exhibition, at the Hispanic Society of America, of photographs, books, etc., covering the same regions.

The exhibition in our house will be suspended on Friday and Saturday, April 3 and 4, as the room will be needed for the meeting of the Association of American Geographers.

Meetings of the Society. A regular meeting of the Society was held at the Engineering Societies' Building, No. 29 West 39th Street, on Tuesday evening, February 24, 1914; Vice-President Greenough in the chair. The following persons, 22 in number, recommended by the Council, were elected to Fellowship:

David Gibbs, Meriden, Conn.,
Edward Cummings Hartshorne, Englewood, N. J.,
Miss Mary A. Armour, Kansas City, Mo.,
John Russell Clarke, Elmira, N. Y.,
Benjamin G. Brawley, Atlanta, Ga.,
Miss Juliette A. Owen, St. Joseph, Mo.,
Lucius F. Donohoe, Bayonne, N. J.,
Roland B. Dixon, Cambridge, Mass.,
Alfred J. Henry, Washington, D. C.,
James F. Chamberlain, Pasadena, Cal.,
Otto Holstein, Guayaquil, Ecuador;
and, of this city:
William Harmon Black,
Gutzon Borglum,
Mortimer N. Buckner,
Henry Kelly Brent,
Frederic Coerr,
Stuart Crockett,
Burdett P. Craig,
Miss Katherine L. Cammann,
Mrs. Sophia Klein,
Jerome Kingsbury,
Max Mayer.

Mr. James W. Erwin of San Francisco then addressed the Society on "Hawaii: Our Mid-Pacific Outpost." Besides many lantern illustrations the lecturer showed a considerable number of very effective moving pictures.

A special inter-monthly meeting was held on Thursday evening, March 12, 1914, when Mrs. Henshaw, Honorary Secretary of the Canadian Alpine Club, gave a lecture upon "A New Alpine Area in British Columbia," illustrated by lantern views.

NORTH AMERICA

The Trend of Geographical Study in Our Country. Professor Isaiah Bowman read a paper at the meeting of the Association of American Geographers in Princeton last winter on the topics dealt with in the papers read before the Association between its first meeting in 1904 and its last meeting three months ago. He said that the first meetings (1904-1906) were naturally marked by a large number of physiographic papers. Then came a period (1907-1910) when physiography and anthropogeography were alternately ahead. In the last three programmes previous to the latest meeting, anthropogeography led, owing chiefly to the growing number of students devoted to the life side of the science. At the Princeton meeting an increasingly large proportion of the total papers dealt with various phases of human geography. Future programmes will probably show a still stronger tendency in this direction, judging by the animated discussions evoked by the more strictly geographical papers.

Flood Sufferers. Destitute refugees to the number of 272,752, and 54,525 head of live stock were cared for during the Mississippi floods of April-July, 1912, according to the report of Major J. E. Normoyle (Flood Sufferers in the Mississippi and Ohio Valleys, *Doc. No. 1,453, House of Repr., 62d Congress, 3d Session,* Washington, 1913). The relief cost the Government about $1,000,000. The report details the daily events during the great flood and gives a good idea of the distress caused by the breaking of the levees. It is similar in style to many Government reports, however, which means that the only way to get information from it is by patient plodding through innumerable telegrams, many of which are of no value whatever.

ROBERT M. BROWN.

Lightning and Forest Fires in the United States. Foresters and meteorologists are indebted to the late Fred G. Plummer, Geographer of the Forest Service, for his excellent and thorough study of "Lightning in Relation to Forest Fires" (*Forest Service Bulletin III,* 1912, pp. 39). The part played by lightning in causing forest fires has lately come to be recognized as of great importance. Observations in our National Forests show that it ranks second only to sparks from locomotives as a source of conflagration. Mr. Plummer collected and sorted all existing data relating to lightning and trees. He secured observations from our National Forests and carried on laboratory experiments. Observations of the number of fires caused by lightning in the United States, the kinds of trees most often struck, and the proportion of those struck which ignite have been made by nearly 3,000 forest officers over a territory of nearly 200,000,000 acres. The general conclusions reached by Mr. Plummer were:

1. Trees are the objects most often struck by lightning because: (*a*) They are the most numerous of all objects; (*b*) as a part of the ground they extend upward and shorten the distance to a cloud; (*c*) their spreading branches in the air and spreading roots in the ground present the ideal form for conducting an electrical discharge to the earth.
2. Any kind of tree is likely to be struck by lightning.
3. The greatest number struck in any locality will be of the dominant species.
4. The likelihood of a tree being struck by lightning is increased: (*a*) If it is taller than surrounding trees; (*b*) if it is isolated; (*c*) if it is upon high ground; (*d*) if it is well (deeply) rooted; (*e*) if it is the best conductor at the moment of flash; that is, if temporary conditions, such as being wet by rain, transform it for the time from a poor conductor to a good one.
5. Lightning may bring about a forest fire by igniting the tree itself, or the humus at its base. Most forest fires caused by lightning probably start at the humus.

R. DEC. WARD.

Oil Production of Mexico. Mexico now holds third place in the list of oil-producing countries. Its annual output amounts to about 18,000,000 barrels, and is exceeded only by that of the United States and Russia. The exports for 1913 will probably amount to 17,000,000 barrels (*Daily Consular and Trade Reports,* Oct. 11, 1913). Mexican oil is much used for fuel purposes. At Manchester, England, tanks for the storage of over 8,500,000 gallons of Mexican oil have been provided. The liquid fuel is distributed by tank cars to plants in Lancashire, Cheshire and the Midland counties. It is also sold to oil-burning vessels. During 1913 a considerable quantity was delivered at

Batum for the account of the Transcaucasian State Railways Company. The Mexican oil fields extend along the entire Atlantic coast. They have been best developed near Tampico and Coatzacoalcos. LEON DOMINIAN.

SOUTH AMERICA

Determining Longitudes by Wireless Telegraphy. Commander H. A. Edwards of the Bolivian section of the Brazil-Bolivia Boundary Survey wrote from the river Abuna, Bolivia, on Nov. 25, that it had been found possible to carry longitude by means of wireless telegraphy right into the heart of the Amazonian forests. Time signals have repeatedly been received from Mr. Atkinson at Porto Velho, the starting point of the Madeira-Mamore R.R. Between Porto Velho and the stations on the Rios Rapirran and Abuna there is no break in the Amazonian forests, but the signals were perfectly receivable in small clearings. Other signals were heard from Lima to Iquitos. The application of wireless telegraphy to expeditions for exploratory surveys opens up visions of new possibilities in which chronometers are relegated to a place of secondary importance. (Condensed from *Geogr. Journ.*, Vol. 43, 1914, No. 2, pp. 206-207.)

AFRICA

Completion of the Tanganyika Railroad. It was officially announced from Berlin on Feb. 2 that the railroad across German East Africa from Dar-es-Salam to Lake Tanganyika was completed Feb. 1 when the rails were laid down at the western terminus, Kigoma, a few miles north of Ujiji. The railroad is 777 miles long and is likely to have important influence not only upon the development of the German colony but also upon the economic future of the Belgian Congo and of Central Africa generally. Express trains will now be able to reach the coast from the lake in two days as compared with the 42 days' journey of the caravans. An important proportion of the Central African trade is bound to gravitate to Dar-es-Salam.

Union of Northern and Southern Nigeria. On January 1 the former colonies of Northern and Southern Nigeria were united under one administration with Sir Frederick Lugard as the first Governor-General. The estimated population of the whole territory is about 17,000,000.

ASIA

Volcanic Eruption in Japan. A terrific eruption of the volcano of Sakura Shima occurred on January 12. This volcano stands on an island in the Gulf of Kagoshima, an indentation on the south coast of Kiushiu, the southernmost of the large islands of Japan. The eruption was preceded for two or three days by sixty or seventy earthquake shocks. Columns of smoke and flame burst from many parts of the mountainside enveloping the whole island. Lava streams pouring down the slope overwhelmed many villages, and great blocks of stone were shot out of the crater to an estimated height of over 2,700 feet, some falling twenty miles away. The heat of the eruption was intense at the city of Kagoshima, about ten miles west of the volcano on the mainland. The city was set on fire and all the inhabitants fled northward. Many lives were lost, especially in the villages on the little island where the volcano stands; and many hundreds of houses were destroyed by the earthquake shocks which were felt all over Kiushiu. There was a heavy fall of ashes in Nagasaki, about 100 miles to the northwest, and ashes also fell as far away as Osaka and Ogasawara. The number of deaths, at first exaggerated, is not believed to have been over 600 persons.

Cold Weather Storms of Northern India. The cold-weather storms of northern India occur between December and April, and are of considerable agricultural importance. It is, therefore, extremely desirable that their origin should be ascertained. The view that these disturbances are generated over the arid districts of Persia and Beluchistan presents several difficulties. Charts recently prepared by Mr. J. I. Craig, of the Meteorological Service of Egypt, for the years 1906-1912, show that about seven-tenths of the disturbances which affect northwestern India in those months are continuations of depressions from southern Europe, but the paths of the depressions vary considerably from year to year. If these storms pass over Syria or Asia Minor, it is to be expected that severe winters with much precipitation in these areas will tend also to be severe winters in northwestern India. The seasonal rainfall in northwestern India was compared with that of places to the west. The evidence shows that the winter seasons in the west of Asia Minor, in Syria, and in Malta, have a closer resemblance to those of northwestern India than do the winter seasons of Persia and Mesopotamia. (*Memoirs Indian Met. Dept.*, Vol. XXI, Part 7.) R. DEC. WARD.

AUSTRALASIA AND OCEANIA

Australian Wheat Farming. The Commonwealth Meteorologist announced in February that Australia's prosperity for the last ten years had been due not to exceptionally good rainfall but to better understanding of the climatic problem, to better systems of farming and to the vast cereal areas that could now be utilized by artificial fertilization. He estimates that 500,000 square miles have been rendered suitable for wheat growing by the new methods.

Mineral Resources of Papua. The *Bulletin of the Territory of Papua* (1913) has reports showing that natural gas, oil, coal and copper are found in the Territory. A gas and oil belt covers about 200 square miles between the Vailala and Purari Rivers and the coast. It is surmised that this district is the prolongation of the oil-fields of the Malayan archipelago. Lignite has been found west of the Purari River between the coast and the valleys of the Samia and Piau Rivers. Copper is reported from the Astrolabe Range in the valley of the Laloki River about ten miles northeast of Port Moresby. Development work has been marked by production and exportation of ore in small quantities.

EUROPE

Geographical Causes of Italian Emigration. A significant paper by Dr. Alfred Rühl on the "Geographical Causes of Italian Emigration" appeared in the *Zeitschr. der Gesell. für Erdkunde zu Berlin,* 1912, pp. 655-671. The occasion for Dr. Rühl's writing lies in the campaign for the conquest of Tripoli. Referring to a common impression that the Italian Government has been guilty of national piracy, the author proceeds, upon geographical grounds, to pass a milder judgment. The more because France, by its occupation of Morocco, strengthens its position in the west, does Italy, in its central position and with its large population, follow a certain call to become the dominant power in the Mediterranean region. The march to Tripoli is not properly a symptom of an Italian imperialistic policy, but is due to more weighty considerations. Emigration from Italy has become so truly calamitous as to raise a vital question for the future of the nation. To the solving of the problem a parliamentary commission has devoted much attention and has made an extended report upon the conditions of living in the southern provinces.

In the decennium 1896-1905 emigration from Italy reached the enormous figure of 4,322,425. Tripoli is for Italy the only available region at once near at hand similar to Italy in physical conditions and offering an economic future. Dr. Rühl declines to make any pronouncement upon the wisdom or final good of the movement, but shows from substantial data that it was not sensational or irrational.

The loss of population is not from the large cities but from the rural regions. This loss is grounded upon a number of serious limitations found in the physical conditions of the Italian peninsula, and it is here that the geographical phases of the problem specially appear. The land is mountainous, the alluvial plains of the Po being the only important exception. Terrace culture is toilsome and costly, and even in Italy the climate at the higher altitudes is harsh. Everywhere the higher lands show much the greater percentages of emigration. A further restriction of utility is found in the malaria, the scourge of some lowlands whose conditions are otherwise good. Here also the percentage of emigration is high. A further condition is found in the incapacity of the chalk formations of the Abruzzi and other mountain districts to retain sufficient water for culture. The barrenness of some regions of granite and schist narrows the power of other southern highlands to support a population. The instability of some slopes and the frequency of landslips form another handicap.

Difficult also are the making and maintenance of means of transportation. This arises from the youth and ruggedness of the land surfaces, the heavy grades to be surmounted and the great number of costly tunnels and other works that are necessary. The common roads also are in many districts of such a character as almost to prohibit the movement of products. Another result of geological youth is the great number and destructiveness of the earthquakes which the land experiences. Nor are the climatic conditions without serious consequences to agriculture. The rainfall, for example, while ample in amount, surpassing even that of middle Europe, has an unfavorable seasonal distribution, and evaporation is large, so that plant life is ill supplied and expensive irrigation is required. Deforestation adds its quota of disaster, and floods all too frequently devastate the valleys.

All these conditions contribute momentum to the movements of emigration. The author hints at the industrial, economic and social improvements which may relieve the difficulties of the national situation, but it is no part of his purpose to discuss matters of this nature. He does affirm, however, that agriculture must continue to lie at the foundation of Italian industry and prosperity. A. P. BRIGHAM.

The Amerika-Institut in Berlin. This institution is a most useful and welcome medium for the interchange of ideas between Germany and the United States. Founded a little more than three years ago, its work is carried on under the auspices of the Prussian Ministry of Education. It is housed in the Royal Library on Unter den Linden, where it has ample offices and has already gathered a serviceable American library of 11,000 volumes. The Director, Dr. Drechsler, and the Assistant Director, Dr. Berttling, have had ample educational experience in America and give unstinted cooperation both to Germans who are investigating American subjects and to Americans making longer or shorter residence in Berlin. Incidental to its main purpose the Institut assists German authors to obtain copyright in the United States and also cooperates with the Smithsonian Institution of Washington in the exchange of documents between Germany and the United States. The handling of more than 34,000 packages in the year 1912 shows the extent of this exchange.

A. P. BRIGHAM.

The Association of Students of Geography at the University of Leipzig. Under the name of "Verein der Geographen an der Universität Leipzig" a scientific association of students of geography has recently been organized at that university which, in addition to weekly meetings and frequent excursions, has begun the publication of scientific papers.[1] Founded by Dr. Lehmann in 1911 after the model of the similar association at the University of Vienna, it has become the center of activity among the younger men interested primarily in the scientific aspect of the subject, although teachers of geography in Saxony are joining the association in increasing numbers. The meetings with their discussions tend to clarify the point of view and broaden the knowledge of the members, while the great number of excursions teach observation in the field. Detailed reports on these excursions, prepared mainly by the younger students, afford their authors opportunity for training in original geographical presentation, while the directions and information they contain make them helpful as guides for those who wish to undertake the same excursions by themselves. A large number of prominent university professors, German, Austrian and American, are patrons of the association. Its library, whose value has been increased through its exchanges, supplements the geographical libraries of the city. The present number of members is 156. WALTER HANNS.

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[1] *Mitteilungen des Vereins der Geographen an der Universität Leipzig:* I (1911), II (1912), III (1913).

Eine geographische Studienreise durch das westliche Europa, von W. Hanns, A. Rühl, H. Spethmann, H. Waldbaur, mit einer Einleitung von W. M. Davis. Leipzig, 1913.

A Congress of Hispano-American Geography and History in Spain. A Congress of Hispano-American Geography and History will be held in Seville on April 11-17 to commemorate the fourth centenary of the discovery of the Pacific Ocean. Documents and maps relating to Spain's former American colonies will be exhibited. A considerable amount of unpublished material will be exhibited for the first time, such as the records of the Archivo de Indias, of the Archivos generales de Simancas, Alcalá é Histórico, etc.

POLAR

Sir Ernest Shackleton's Next Expedition. *The Geographical Journal* (Vol. 43, 1914, No. 2, pp. 173-178) prints Shackleton's plans for his coming Antarctic Expedition. He expects to sail from Buenos Aires early in October this year for Weddell Sea, south of the Atlantic, and will establish a winter camp on Prince Luitpold Land, the part of the Antarctic Continent discovered by Filchner in 1912. The second in command will be Frank Wild, a first-class surveyor who was with Scott in 1901-1904, with Shackleton in 1907-1909, and more recently made an important sledge journey along some hundreds of miles of the coast of Wilkes Land. At winter quarters Shackleton will leave a trained biologist, a geologist and a physicist for scientific work and will also provide a party of three to explore the wholly unknown land to the east of the camp.

His main purpose is to cross the South Polar continent from Weddell Sea, south of the Atlantic to Ross Sea. He intends to strike out for the South Pole, from which point he plans to take a route either to the eastward of Amundsen's track to the Pole or between the routes of Scott and Amundsen on their journeys to that region. His route will thus be entirely over new ground. His party of six men will undertake the trans-Antarctic journey with 120 dogs and two sledges. A ship will be provided to meet him at Ross Sea. He hopes to accomplish good results in the various branches of scientific work.

Stackhouse's Antarctic Expedition. Further details as to the organization of Mr. J. Foster Stackhouse's expedition supplement the information given in the *Bulletin* (February, 1914, p. 134). Arrangements are being made to leave London on Aug. 1 in Captain Scott's old ship, the *Discovery.* The officers and crew will number 25. The scientific staff will include Lord Congleton and two other experienced surveyors, all officers and scientists giving their services gratuitously. Lieut. A. E. Harbord, R.N., will command the *Discovery.* The expedition expects to be away for three or four years. It will endeavor to settle the question whether King Edward VII Land is a part of the Antarctic Continent or merely a small island, or group of islands; and also explore the coast of the Antarctic Continent between Graham Land in the east and King Edward VII Land in the west. Here is a large stretch of shore line and land forming a vast and practically unexplored region. (Condensed from *The Times,* Weekly Edition, Feb. 6, 1914, London.)

WORLD AND PARTS OF IT

Weather Map of the Northern Hemisphere. On January 1, the United States Weather Bureau began the publication at Washington of a weather map of the Northern Hemisphere. Hereafter this map will be printed on the reverse side of the morning weather map of the United States. A similar manuscript map of the Northern Hemisphere has been prepared daily for several past years in the Weather Bureau, and has proved of great value to the forecasters in predicting general changes of the weather, and especially in extending the periods for which such forecasts can be successfully made. Although the number of reports available for the construction of the map is limited at present, and the times of observation are not all strictly simultaneous, still the essential features of the atmospheric circulation over the Northern Hemisphere are fairly well depicted.

It seemed advisable not to retain the arbitrary units ordinarily employed for measuring pressure and temperature of the atmosphere, but to adopt the more scientific and rational units of the C. G. S. system. Accordingly, the reported pressures are all expressed in dynamic units in which a pressure of 750.06 mm. of mercury corresponds to a force of 1,000,000 dynes. The reported temperatures have all been reduced to the absolute scale (Centigrade) on which the temperature of melting ice is 273°.

The Cruise of the "Carnegie." Mr. William J. Peters, Chief of the Carnegie Magnetic Expedition, under Dr. L. A. Bauer, director, sends us the following summary of the cruise around the world:

"The yacht *Carnegie,* belonging to the Carnegie Institution of Washington, finished her cruise around the world when she arrived at New York on December 20. Over 1,400 determinations of the magnetic elements were made at sea, distributed over some 92,000 miles. The ports of call were: Vieques (Porto Rico), Para, Rio de Janeiro, Buenos Aires, Cape Town, Colombo, Mauritius, Batavia, Manila, Suva, Papeete (Tahiti), Coronel, Port Stanley, St. Helena, Bahia and Falmouth. Two of these ports were visited twice, Colombo and St. Helena.

"Comparisons of the ship's absolute instruments and the instruments at magnetic observatories were made at Vieques, Pilar, Mauritius, Batavia and Manila, through the courtesies of the officers in charge. These comparisons afford the means of correlating the results of these observatories. The crossings and recrossings of the *Carnegie's* tracks and those of the *Galilee* and *Gauss* will afford valuable data for determining secular change on the oceans.

"The Director of the Department of Terrestrial Magnetism, under which the vessel is operated, Dr. L. A. Bauer, met the *Carnegie* at Colombo and Batavia, and sailed on the passage from Colombo to Mauritius and return. The *Carnegie* had remarkably good weather throughout the cruise until returning home, when she was caught in some of the stormy weather that generally prevails on the Atlantic seaboard in the winter months."

MATHEMATICAL GEOGRAPHY AND CARTOGRAPHY

Present Status of Cartography. In their recently published "History of Geography" (Putnam's, 1913: in series "A History of the Sciences"), the authors, J. Scott Keltie and O. J. R. Howarth, have the following to say on the present status of cartography, in which the single sentence (italicized below) so aptly characterizing the development of this branch of geography in our country will be read with interest (Chapter XIV, pp. 171-173):

"The work of the cartographer, as exemplified in atlases and small-scale maps of general utility, has by no means in all cases followed the high standard of the surveyor. Commercial considerations are not to be overlooked; cheap and rapid methods of reproduction bring their temptations as well as their advantages to bear upon cartography. Their advantages are manifest; the map, whether as an adjunct to travel or as a graphic illustration of a great variety of subjects, has become a commodity of almost daily use. *But in some countries, such as the United States, the standard of cartography generally is as low as that of the maps of the survey is high.* The reduction and selection of details from a large-scale survey for use on a small general map, the methods of representing such details, the permissible limit of generalizing them, the choice of colors—these and other aspects of cartography really demand a scientific standard as exalted in its way as that of the surveyor. That standard has been most firmly upheld in Germany, in such geographical establishments as that founded by Justus Perthes at Gotha in 1785, which publishes the famous general atlas originally formed by A. Stieler in 1817-32, the physical atlas of H. Berghaus (1838-42), and many other such works. Other names of individual workers in the same field come readily to the mind—H. Kiepert, A. Petermann, K. von Spruner, Behm, Supan, Langhans, Andree, Debes, A. Ravenstein. The British and French lists are shorter, though the names of John Bartholomew, W. and A. K. Johnston, Edward Stanford and George Philip, Vivien de Saint Martin, F. Schrader and Vidal de la Blache must be remembered.''

The International Map of the World in 1:1,000,000. Some twelve sheets of this map have been produced in the four years since the First International Map Conference met in London. The work thus far done has demonstrated the desirability of making certain changes in the plan of production agreed to in London. The French Government therefore issued invitations to the other governments interested in the project to attend a second International Conference at Paris, which opened on December 10. Among the delegates present at Paris were Messrs. Penck, Partsch, Brückner, Loczy, Vidal de la Blache, Lallemand, General Schokalsky and Colonel Close. General Bourgeois was in the presidential chair.

It was decided to retain the arrangement of sheets, the projection, scales and unit of heights as agreed upon in London. The subjects of the Paris conference were therefore confined to conventional signs, representation of relief and the principles of the partition of the work.

It soon became evident that no binding decision was possible as to the classification of towns. For example, a town of 20,000 people has very different importance in Europe and in Africa. It was therefore left to the country producing the sheet to classify its towns for itself with the proviso only that the legends on the sheet margin shall explain the system adopted.

The double red line for roads was abolished. The solid line adopted will be more legible on the layer tints. Railroads, telegraphs, navigable rivers and canals were all dealt with and their signs revised in the light of experience. The conventional signs sheet, when issued, will give a better idea of these signs than any verbal description. The conference adopted ''Carte internationale du monde au millionième'' as the official name of the map.

The color scheme for layers was revised and new rules for contours adopted. Certain contours were made obligatory: 200, 500, 1,000, 1,500 meters, and so on; the 100 meter contour is defined as extremely desirable and the insertion or omission of the remainder is left to discretion, subject always to the provision that in principle the interval is still 100 meters. A similar convention governs the contours on the sea bottom.

The color scale decided upon is not very different from the old one up to 1,000 meters, but above that elevation it runs into shades of pure carmine in place of the brown turning to magenta. Layer colors will cease at the line of permanent snow and on the glaciers. The latter will be distinguished from snow-clad spurs by blue glacier lines and by a special bluish shade where necessary. Where the relief of the permanent snows is not sufficiently shown by contours, shade may be added to them at discretion. In fact, each map producing establishment has liberty to do the best it can, which is the only way towards a real solution of the problem. The color scheme for the sea was taken from the oceanographical atlas of the Prince of Monaco.

The preparation of sheets covering the territory of several powers equally capable of undertaking the work must necessarily lead to an exchange of views. A sheet extending from the territory of one such power to that of another with inferior cartographical resources falls naturally to the former. But in some parts of the world, particularly in Asia, there are whole sheets not provided for by this rule which may yet come within the scope of one or perhaps more than one power. In such cases the conference declines to lay down any rule.

The conference was much pleased when the delegate of the Chinese Republic announced that he was authorized by his Government to say that the General Staff at Peking has established in all the provinces of China cartographical plants charged with the production of the map, and these operations are making steady progress.

Undefined boundaries in South America were settled for map-making purposes in a friendly conference between the representatives concerned, and the partition of Africa was agreed upon in principle.

The British delegation was authorized by their Government to propose that a permanent central office should be established in England with headquarters at the Ordnance Survey, and an auxiliary office in London. The office will have no executive authority and its function will be the publication of an annual report, the exchange of information, and the provision of useful data to all interested. The conference, with appreciative acknowledgments, accepted the proposal. (Condensed from the *Geogr. Journ.*, Vol. 43, 1914, No. 2, pp. 178-182.)

GENERAL

Climate and the Protein Content of Wheat. Some interesting relations between climate and the protein content of wheat are given by Mr. G. W. Shaw in "The University of California Publications in Agricultural Sciences" (Vol. 1, No. 5). These investigations grew out of the fact that the millers of California found it necessary to import many hundred tons of wheat to maintain the quality of flour owing to the low gluten content of the local wheat. The crop tests showed marked variations in gluten in proportion to changes in precipitation, temperature and sunshine of the growing seasons; also that the higher gluten content came with a somewhat lower rainfall during the growing season. In order to test the influence of sunshine the plats were shaded with lath screens so as to cut off varying amounts of sunshine while portions were allowed to have maximum sunshine. The results showed that the optimum sunshine is slightly less than the normal amount for the valleys of the state. Portions of plats were cooled by shading during the morning hours and were further cooled by ice. The general effect of reducing the temperature was to increase the gluten content. F. V. Emerson.

OBITUARY

Sir David Gill. Sir David Gill, the distinguished astronomer, died at his residence in London on January 23 in his 71st year. His scientific fame rests chiefly on his skillful pioneer work in determining the distances of the heavenly bodies. The first successful attempt to measure the distance of a fixed star had been made a few years before he was born, but further progress was very slow until Gill threw his energies into the work. Our knowledge in this direction is still in its infancy and, in his Presidential address to the British Association in 1907, Gill did not venture to say more than that "accurate and minute measurement has given us some certain knowledge as to the distance of the stars within a certain limited portion of space"; that he could say even so much was largely due to his own work and to that which it stimulated in others.

Edouard Janssens. The Society learns with regret of the death of M. Edouard Janssens, President of the Royal Geographical Society of Antwerp, on Feb. 25, 1914, at the age of 50 years.